

REMARKS

Claims 1, 3, 5, 7, 10, and 15–18 are pending in the Application, of which, Claims 1, 3, 5, and 7 are independent. Claims 1, 3, 5, 7, 10, and 15–18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over cited references. Applicants respectfully disagree for the reasons set forth below.

Summary of Embodiments of Applicants' Invention

An example of one embodiment of Applicants' invention is described below to highlight some aspects of the invention without limitation of the claims. More on the embodiment described below can be found at least in page 3, lines 27–29; page 5, lines 8–24; page 9, lines 9–27; and in Figures 2, 3, and 6 of the application as filed. The description below is an example of one of many embodiments that fall within the scope of Applicants' claims and is provided to illustrate some aspects of Applicants' invention, not to limit the claims.

Embodiments include a router configured to connect to another router using a composite trunk formed by aggregating multiple physical links. Composite trunking making it easier to balance load across multiple trunks by allowing load to be dynamically shifted across the individual trunks making up a composite trunk without changing the routing function. Applicants' Figures 2 and 3 show an example router 1 connected to router 2 via a composite trunk 10 formed of four trunks 11–14. When router 1 receives a packet for router 2, router 1 switches the packet to one of the line cards 41–44 coupled to the composite trunk 10 using a switching fabric 100 that routes the packet according to values in a fabric forwarding table (e.g., the table shown in FIG. 6). An output port selector (not shown) dynamically balances the load across the trunks 11–14 of the composite trunk 10 by distributing the packets across the individual trunks comprising the composite trunk. Typically, the forwarding table “includes entries to multiple routes for load distribution but weights the number of entries to each route to favor the shortest route.” Application as filed, page 9, lines 15–16 (emphasis supplied). If a trunk 11 of the composite trunk 10 becomes a bottleneck, “[t]he load can be balanced by finding a forwarding table entry that directs packets to the overloaded output trunk and rewriting the

route in this entry to direct packets to a more lightly loaded output trunk [e.g., trunks 12–14].” *Id.*, page 9, line 22 (emphasis supplied).

Claims 1, 5, 10, 15, and 16

Claims 1, 5, 10, and 15–16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wong *et al.*, U.S. Pub. No. 2004/0037278 B1 (hereinafter “Wong”), in view of Gifford, U.S. Patent No. 6,052,718 (hereinafter “Gifford”), and further in view of Ahmadi *et al.*, U.S. Patent No. 5,233,604 (hereinafter “Ahmadi”).

Applicants respectfully note a discrepancy between page 2 of the Office Action citing to Ahmadi and page 4 of the Office Action citing to Narvaez-Guarnieri *et al.*, U.S. Patent No.: 6,098,107 (hereinafter “Narvaez”) as the tertiary reference under 35 U.S.C. §103(a). Based on the cited columns and applicable quotations listed on page 4 of the Office Action, Applicants assume Ahmadi was mistakenly written on page 2 in the place of Narvaez; as such, Applicants respond in kind.

Applicants’ Claim 1 recites, in part, “[a] network router to route Internet Protocol (IP) data packets comprising...the output port selector balancing load across the trunks of the composite trunk by dynamically weighting a number of entries to each route to the common destination.”

The Office acknowledges that Wong and Gifford fail to disclose “*dynamically weighting a number of entries to each route to the common destination*,” as recited in Applicants’ Claim 1. The Office further cites Gifford col. 11, lines 31–62 as being said to “implicitly disclose[] dynamically weighting a number of entries to each route to the common destination (emphasis added).” Office Action, page 3, last para. However, Applicants respectfully note that no such implicit inference exists in Gifford because, in actuality, the cited portion states, “the replica router further being programmed to update dynamically the replica routing database based on internetwork performance information periodically received by the replica router, wherein the period of updates may dynamically change.” Gifford, col. 11, lines 48–52. In other words, Gifford’s router is merely updating a routing database dynamically, which fails to teach or describe “*balancing load across the trunks of the composite trunk by dynamically weighting a number of entries to each route to the common destination*,” as recited in Applicants’ Claim 1 (emphasis added).

In addition, the Office cites Narvaez as being said to explicitly disclose “*balancing load across the trunks of the composite trunk by dynamically weighting a number of entries to each route to the common destination,*” as in Applicants’ Claim 1.

However, Narvaez generally describes a method for computing a shortest path tree (SPT) structure for nodes in an interconnected network. *See* Narvaez, Abstract. Specifically, Narvaez discloses algorithms to be “employed in Internet routers for dynamically updating the shortest path tree structure after one or more link state changes.” Narvaez, col. 2, lines 25–28 (emphasis added). In other words, Narvaez’s “shortest path algorithms” are disclosed as being “dynamic” because these algorithms minimize the number of SPT changes, as compared to the number of changes when a new SPT is computed from scratch, in order to update the SPT structure, which is the topology structure of the SPT and not the weight of entries. *See* Narvaez, col. 2, lines 34–41. Narvaez’s minimizing of the number of computations required to update the topology structure of the SPT does not disclose “*balancing load...by dynamically weighting entries to each route.*” Narvaez is merely concerned with updating the topology structure and contains no information regarding the weights of the links being related to the number of entries to each route. As such, Applicants respectfully submit that Narvaez is not “*balancing load across the trunks of the composite trunk by dynamically weighting a number of entries to each route to the common destination,*” as in Applicants’ Claim 1.

Therefore, Applicants respectfully submit that the hypothetical system combining Wong, Gifford, and Narvaez would fail to teach all elements of Applicants’ Claim 1, and, thus, Claim 1 is novel and non-obvious over the cited art. Independent Claim 5 includes similarly patentably distinguishing features as Claim 1; Claims 10, 15, and 16, which depend from Claims 1 or 5, include the same elements from which they depend; therefore, Applicants respectfully submit that the rejections of Claims 1, 5, 10, 15, and 16 are overcome and request withdrawal of same.

Claims 3, 7, and 17–18

Claims 3, 7, and 17–18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wong in view of Gifford.

Independent Claims 3 and 7 contain similarly patentably distinguishing elements as Claims 1 and 5, *e.g.*, “*routes in the table being dynamically rewritable for a load to approach balance across the trunks,*” and, therefore, the arguments above similarly apply here. In

addition, the Office acknowledges that Wong does not disclose “*IP data packets*,” “*a destination IP address of the IP data packets*,” or “*routes in the table being dynamically rewritable*,” and cites Gifford for these elements. However, the cited portion of Gifford states, “the replica router further being programmed to update dynamically the replica routing database based on internetwork performance information.” Gifford, col. 11, lines 49–52. In other words, Gifford is updating a database regarding performance information overall; whereas, Applicants’ Claims 3 and 7 have each route of a composite trunk being dynamically rewritten in a table. Furthermore, the invention disclosed by Gifford neither relates to nor discloses composite trunking; therefore, no person having ordinary skill in the art would combine Wong and Gifford. As such, Gifford and Wong, in combination or alone, fail to disclose all elements of Applicants’ Claims 3 and 7; accordingly, Applicants respectfully submit that the rejections of Claims 3 and 7, as well as Claims 17, and 18, which depend there from, are overcome and request withdrawal of same.

CONCLUSION

In view of the above remarks, it is believed that all claims, Claims 1, 3, 5, 7, 10, and 15–18, are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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